

CLAIMS

What is claimed is:

1 1. A hand held hair dryer with automatic air movement, the
2 hand held dryer comprising:
3 a housing;
4 a fan to generate an air flow in the housing;
5 a propeller with a propeller shaft aligned with the fan to
6 receive the air flow;
7 a nozzle pivotally mounted in the housing; and
8 a plurality of gears between the nozzle and the propeller
9 shaft, the plurality of gears to pivot the nozzle to redirect the
10 air flow out from the hand held hair dryer in response to
11 rotation of the propeller.

1 2. The hand held hair dryer of claim 1, wherein
2 the housing, the propeller, the nozzle, and the plurality of
3 gears are integrated together as an attachment.

1 3. The hand held hair dryer of claim 2, wherein
2 the hand held hair dryer is a standard hair dryer and the
3 attachment is a universal attachment, and
4 the hand held hair dryer further comprises:
5 a flexible boot coupled to the housing at one end, the
6 flexible boot to flexibly couple to a body of the standard
7 hair dryer.

1 4. The hand held hair dryer of claim 1, further
2 comprising:

3 an electric heater between the fan and the propeller, the
4 electric heater to heat the air flow in the housing.

1 5. The hand held hair dryer of claim 1, wherein
2 the housing is rotatable to rotate a plane of the air flow.

1 6. The hand held hair dryer of claim 1, wherein
2 the air flow is redirected out from the hand held hair dryer
3 without restriction.

1 7. The hand held hair dryer of claim 1, wherein
2 gear reduction provided by the plurality of gears pivots the
3 nozzle back and forth in a plane.

1 8. The hand held hair dryer of claim 1, further
2 comprising:

3 a pivot shaft coupled to the nozzle;
4 a linkage arm having a first end rotatably coupled to a
5 crank gear of the plurality of gears, the linkage arm to convert
6 rotational motion of the crank gear into linear motion of the
7 linkage arm; and
8 a drive arm having a first end rotatably coupled to a second
9 end of the linkage arm and a second end affixed to the pivot

10 shaft, the drive arm to convert linear motion of the linkage arm
11 into pivotal motion of the pivot shaft and the nozzle.

1 9. The hand held hair dryer of claim 8, wherein
2 the housing includes

3 a retaining collar having a pair of bushings, the pivot
4 shaft having ends pivotally coupled to the pair of bushings.

1 10. The hand held hair dryer of claim 8, wherein
2 the housing includes

3 an intake sleeve having a first opening at a first end
4 to receive the air flow and a second opening at a second end
5 to direct the air flow into the nozzle, the propeller
6 supported within the intake sleeve aligned with the intake
7 opening to receive the air flow.

1 11. A hair dryer attachment comprising:

2 a housing with a first opening to couple to an end of a hair
3 dryer;

4 a propeller aligned with the first opening of the housing to
5 receive air flow from the end of the hair dryer, the propeller
6 coupled to a propeller shaft;

7 a nozzle pivotally mounted in the housing; and

8 a gear stack coupled between the nozzle and the propeller
9 shaft, the gear stack to pivot the nozzle in response to rotation
10 of the propeller.

1 12. The hair dryer attachment of claim 11, further
2 comprising:

3 a pivot shaft coupled to the nozzle, the pivot shaft
4 pivotally coupled to the housing,

5 a linkage arm rotatably coupled to a final gear of the
6 gearing at a first end,

7 a drive arm having one end coupled to the pivot shaft and
8 another end rotatably coupled to a second end of the linkage arm,

9 wherein the linkage arm translates rotational motion of the
10 final gear into linear motion, and

11 wherein the drive arm translates the linear motion of the
12 linkage arm into pivotal motion of the pivot shaft and the nozzle
13 coupled thereto.

1 13. The hair dryer attachment of claim 11, wherein
2 the gear stack repeatedly pivots the nozzle back and forth
3 so that it automatically oscillates the air flow over a users
4 head.

1 14. The hair dryer attachment of claim 11, further
2 comprising:
3 a flexible boot coupled to the housing at one end, the
4 flexible boot having a second end to flexibly couple to a
5 body of the standard hair dryer.

1 15. The hair dryer attachment of claim 14, wherein

2 the hair dryer attachment is a universal hair dryer
3 attachment to couple to a plurality of models of hand held
4 electric hair dryers.

1 16. A method of automatic air flow movement for a hand held
2 hair dryer, the method comprising:
3 generating an air flow within a housing;
4 directing the air flow at a propeller to rotate the
5 propeller and a propeller shaft coupled to the propeller;
6 directing the air flow into a nozzle;
7 converting rotational motion of the propeller shaft into a
8 repetitive pivotal motion of the nozzle; and
9 oscillating the air flow out from the nozzle by repetitively
10 pivoting the nozzle in response to the rotational motion of the
11 propeller shaft.

1 17. The method of claim 16, wherein
2 the converting of rotational motion of the propeller shaft
3 into the repetitive pivotal motion of the nozzle includes
4 gearing down the rotational motion of the propeller
5 shaft;
6 converting the rotational motion into a repetitive
7 linear motion; and
8 converting the repetitive linear motion into the
9 repetitive pivotal motion.

1 18. The method of claim 16, further comprises:

2 heating the air flow with an electric heater prior to
3 directing the air flow at a propeller.

1 19. The method of claim 16, further comprises:
2 rotating the nozzle to a different position to oscillate the
3 air flow in a different plane than a first plane of air flow
4 oscillation.

1 20. The method of claim 16, wherein
2 a pivot shaft is coupled to the nozzle.

1 21. A universal nozzle attachment for a hair dryer
2 comprising:
3 an oscillating nozzle to redirect air flow received from the
4 hair dryer;
5 a collar to pivotally support the oscillating nozzle, the
6 oscillating nozzle pivotally mounted to the collar in an opening
7 thereof;
8 a hollow flexible rubber boot having a first opening at a
9 first end to couple to a barrel of the hair dryer and a second
10 opening at a second end to couple to the collar;
11 a bracket coupled to the collar;
12 a propeller aligned in the center of the first opening of
13 the boot, the propeller coupled to a propeller shaft supported by
14 the bracket; and
15 a gear stack supported by the bracket, the gear stack
16 between the oscillating nozzle and the propeller shaft to convert

17 a rotational motion in the propeller shaft into a pivotal motion
18 of the oscillating nozzle.

1 22. The universal nozzle attachment of claim 21, wherein
2 the oscillating nozzle is a hollow spherical shape with
3 openings at opposite sides.

1 23. The universal nozzle attachment of claim 21, wherein
2 the oscillating nozzle is a hollow cylindrical shape with
3 openings at opposite sides.

1 24. The universal nozzle attachment of claim 21, wherein
2 the oscillating nozzle has a pivot shaft parallel with a
3 center line, the pivot shaft having ends protruding from the
4 oscillating nozzle to pivotally couple into bushings of the
5 collar.

1 25. The universal nozzle attachment of claim 21, wherein
2 the universal nozzle attachment is coupled to the hair
3 dryer, and
4 the oscillating nozzle automatically swivels in response to
5 air flow being generated by the hair dryer.

1 26. The universal nozzle attachment of claim 21, wherein
2 the gear stack includes
3 a plurality of gears between the oscillating nozzle and
4 the propeller shaft to convert the rotational motion of the

5 propeller shaft into the pivotal motion of the oscillating
6 nozzle.

1 27. The universal nozzle attachment of claim 26, wherein
2 the gear stack further includes

3 a linkage arm coupled to one of the plurality of gears
4 to convert the rotational motion of the propeller shaft into
5 a linear motion, and

6 a drive arm coupled between the linkage arm and the
7 oscillating nozzle to convert the linear motion into the
8 pivotal motion of the oscillating nozzle.

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